

WHAT IS CLAIMED IS:

1. A synthetic polymer comprising a cationic recurring unit and a crosslinking unit, wherein the crosslinking unit comprises at least a first degradable unit selected from the group consisting of acetal, imine and hydrazone, and at least a second degradable unit selected from the group consisting of ester, phosphoester, amide, anhydride and urethane.

2. The synthetic polymer of Claim 1 in which the cationic recurring unit comprises an amine group or a salt thereof.

3. The synthetic polymer of Claim 2 in which the amine group or a salt thereof is a tertiary amine group.

4. The synthetic polymer of Claim 1 that is water-swellaable.

5. The synthetic polymer of Claim 1 having a weight average molecular weight in the range of about 1,000 to about 100,000 Daltons.

6. The synthetic polymer of Claim 1 wherein the first degradable unit is acetal.

7. The synthetic polymer of Claim 1 wherein the second degradable unit is ester.

8. The synthetic polymer of Claim 1 wherein the first degradable unit is acetal and the second degradable unit is ester.

9. A carrier composition comprising the synthetic polymer of Claim 1 and a bioactive agent selected from the group consisting of nucleic acid, polypeptide, peptide, lipid and carbohydrate.

10. The carrier composition of Claim 9 in which the bioactive agent is a nucleic acid.

11. The carrier composition of Claim 10 in which the nucleic acid is selected from the group consisting of DNA, RNA, ribosome and DNA-RNA hybrid.

12. The carrier composition of Claim 10 in which the nucleic acid is DNA.

13. The carrier composition of Claim 10 in which the nucleic acid is RNA.

14. The carrier composition of Claim 13 in which the RNA is double stranded.

15. A method of delivering a bioactive agent comprising contacting a viable cell with the carrier composition of Claim 9 under conditions effective to maintain cell viability.

16. The method of Claim 15 further comprising transfecting the cell with the bioactive agent.

17. The method of Claim 16 in which the bioactive agent is DNA.
18. The method of Claim 17 in which the first degradable unit of the synthetic polymer is acetal.
19. The method of Claim 18 in which the second degradable unit of the synthetic polymer is ester.
20. The method of Claim 19 in which the cell is a human cell.